Space Weather Forecast

Issued on Thursday, 20 June 2024 at 01:11 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Moderate-class flares likely (R1-R2 radio blackouts), slight chance of Strong flares (R3 blackouts). Slight chance of S1/Minor radiation storm.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Moderate with a Moderate-class flare peaking at 19/0638 UTC. There are now six sunspot regions on the disc. The largest region is in the southwest, however it has started to pull apart in recent hours, with its magnetic complexity reducing. Another region in the southwest has continued to increase in size and complexity. A region in the northwest has also seen growth in its trailing spots, with some minor magnetic complexity emerging. Two further regions are both still very close to the southeast limb, meaning they are currently difficult to analyse due to foreshortening effects.
No obviously Earth directed Coronal Mass Ejections (CMEs) have been seen in the last 24 hours.

Solar Wind / Geomagnetic Activity: Solar winds showed declining coronal hole fast wind influence. Wind speeds were elevated between 510-570 km/s, gradually declining after 19/1800 UTC to around 480 km/s. Interplanetary Magnetic Field was weak, with the north-south component also varying weakly. Geomagnetic activity has been Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) has remained at background levels with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary
Solar Activity: Moderate activity is likely, with a slight chance of isolated Strong flares, most likely from either of the two regions in the southwest, but potentially also the region in the northwest.

Solar Wind / Geomagnetic Activity: No obviously Earth directed CMEs have been seen in satellite imagery, although given the number of recent CMEs there is some uncertainty. Wind speeds have been elevated due to a coronal hole fast wind, and are expected to continue to slowly decline over the next couple of days. A further enhancement from another large coronal hole in the northern disc is possible, although confidence is currently low in the timing and strength of this feature. Wind speeds potentially returning to slightly elevated, perhaps elevated, by the end of Day 2 or into Day 3 (21-22 Jun). Any geomagnetic response is expected to be limited at this time of year.
Mainly Quiet to Unsettled geomagnetic activity is expected. There is a chance of isolated Active intervals Day 2 into Day 3, should we see any further coronal hole fast wind enhancement.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to be at background levels but with the potential to rise, should any notable flares occur. This gives a slight chance of reaching the S1/Minor solar radiation storm level.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	5	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	70	70
Very Active	R3 to R5 X	No	20	20	20	20

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	15	20	20	20
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.